

AMENDMENTS TO THE CLAIMS

1. (Currently Amended)

A method comprising:

providing a watercraft, the watercraft comprising a hull, a fluid chamber, a voice coil actuator, and at least one fluid port, the fluid port allowing fluid communication between the fluid chamber and a liquid environment external to the watercraft; propelling the watercraft within the liquid environment in a manner such that a liquid stream boundary layer exist adjacent the hull of the watercraft; and repetitively increasing and decreasing the internal volume of the fluid chamber via the voice coil actuator in a manner such that fluid is expelled from the fluid port into the liquid stream boundary layer.

2. (Original)

A method in accordance with claim 1 wherein the step of repetitively increasing and decreasing the internal volume of the fluid chamber occurs in a manner such that the fluid expelled from the fluid port into the liquid stream boundary layer is in a gaseous state as it is expelled.

3. (Original)

A method in accordance with claim 2 wherein the step of repetitively increasing and decreasing the internal volume of the fluid chamber occurs in a manner such that the decreasing of the internal volume of the fluid chamber causes the expulsion of fluid from the fluid port into the liquid stream boundary layer and such that the increasing of

the internal volume of the fluid chamber causes fluid in a gaseous state to be drawn into the fluid chamber from a gaseous environment external to the watercraft.

4. (Currently Amended)

~~A method in accordance with claim 3 wherein the fluid port constitutes a first fluid port and wherein the step of providing the watercraft occurs in a manner such that the watercraft comprises~~

A method comprising:

providing a watercraft, the watercraft comprising a hull, a fluid chamber, first and second fluid ports, a second fluid port and first and second valves, the first fluid port allowing fluid communication between the fluid chamber and a liquid environment external to the watercraft, the second fluid port allowing communication of fluid between the fluid chamber and the gaseous environment external to the watercraft, each of the first and second valves being movable between opened and closed positions, the first valve being configured and adapted to prevent fluid communication between the first fluid port and the fluid chamber when in its closed position and to allow such communication when in its opened position, the second valve being configured and adapted to prevent fluid communication between the second fluid port and the fluid chamber when in its closed position and to allow such communication when in its opened position;

propelling the watercraft within the liquid environment in a manner such that a liquid stream boundary layer exist adjacent the hull of the watercraft; and

repetitively increasing and decreasing the internal volume of the fluid chamber in a manner such that the decreasing of the internal volume of the fluid chamber causes the expulsion of fluid in a gaseous state from the first fluid port into the liquid stream boundary layer and such that the increasing of the internal volume of the fluid chamber causes fluid in a gaseous state to be drawn into the fluid chamber from a gaseous environment external to the watercraft, the step of repetitively increasing and decreasing the internal volume of the fluid chamber occurring in a manner such that the decreasing of the internal volume of the fluid chamber occurs occurring with the first valve in its opened position and the second valve in its closed position and such that the increasing of the internal volume of the fluid chamber occurs occurring with the first valve in its closed position and the second valve in its opened position.

5. (Currently Amended)

~~A method in accordance with claim 1 wherein the step of repetitively increasing and decreasing the internal volume of the fluid chamber occurs~~

A method comprising:

providing a watercraft, the watercraft comprising a hull, a fluid chamber, and at least one fluid port, the fluid port allowing fluid communication between the fluid chamber and a liquid environment external to the watercraft;

propelling the watercraft within the liquid environment in a manner such that a liquid stream boundary layer exist adjacent the hull of the watercraft; and repetitively increasing and decreasing the internal volume of the fluid chamber in a manner such that fluid is expelled from the fluid port into the liquid stream boundary

layer and in a manner such that fluid expelled from the fluid port into the liquid stream boundary layer is in a liquid state as it is expelled.

6. (Original)

A method in accordance with claim 5 wherein the step of repetitively increasing and decreasing the internal volume of the fluid chamber occurs in a manner such that fluid in a liquid state is drawn into the fluid port from the liquid stream boundary layer.

7. (Original)

A method in accordance with claim 6 wherein the fluid port constitutes a first fluid port and wherein the step of providing the watercraft occurs in a manner such that the watercraft comprises a second fluid port, the second fluid port allowing fluid communication between the fluid chamber and the liquid environment, and wherein the step of repetitively increasing and decreasing the internal volume of the fluid chamber occurs in a manner such that fluid in a liquid state is intermittently expelled from the second fluid port into the liquid environment and such that fluid in a liquid state is intermittently drawn into the second fluid port, the step of propelling the watercraft within the liquid environment occurring via the expulsion of liquid from the second liquid port.

8. (Original)

A method in accordance with claim 5 wherein the step of repetitively increasing and decreasing the internal volume of the fluid chamber occurs in a manner such that the repetitiveness occurs with a frequency below one-hundred Hertz.

9. (Cancelled)

10. (Currently Amended)

A method comprising:

providing a watercraft, the watercraft comprising a hull, a voice coil actuator, and a reciprocating member;

providing a liquid environment external to the watercraft, the liquid environment being in liquid communication with the reciprocating member of the watercraft;

propelling the watercraft within the liquid environment in a manner such that a liquid stream boundary layer exist adjacent the hull of the watercraft; and increasing momentum within the liquid stream boundary layer by moving the reciprocating member in a linearly reciprocating manner relative to the hull of the watercraft via the voice coil actuator.

11. (Cancelled)

12. (Original)

A method in accordance with claim 10 wherein the step of increasing momentum within the liquid stream boundary layer occurs via alternating compression and expansion waves created by the moving of the reciprocating member in the linearly reciprocating manner relative to the hull of the watercraft.

13. (Original)

A method in accordance with claim 12 wherein the step of increasing momentum within the liquid stream boundary layer via alternating compression and expansion waves occurs in a manner such that the alternating compression and expansion waves have a frequency below one-hundred hertz.

14. (Original)

A method in accordance with claim 10 wherein the watercraft comprises a liquid port, the liquid environment being in liquid communication with the reciprocating member via the liquid port, and wherein the step increasing momentum within the liquid stream boundary layer occurs in a manner such that the moving of the reciprocating member in the linearly reciprocating manner relative to the hull of the watercraft causes liquid to be expelled from the liquid port into the liquid stream boundary layer and to be drawn into the liquid port from the liquid stream boundary layer.

15. (Currently Amended)

A method in accordance with ~~claim 10~~ claim 14 wherein the liquid port constitutes a first liquid port and wherein the step of providing the watercraft occurs in a manner such that the watercraft comprises a second liquid port, the second liquid port allowing liquid communication between the reciprocating member of the watercraft and the liquid environment, the step of propelling the watercraft within the liquid environment occurring by liquid being intermittently expelled from the second fluid port into the liquid environment in response to the moving of the reciprocating member in the linearly

reciprocating manner, the moving of the reciprocating member in the linearly reciprocating manner also causing liquid to be intermittently drawn into the second fluid port.

16. (Currently Amended)

A watercraft comprising:

a hull, the hull having an exterior surface;
a reciprocating member, the reciprocating member being operatively connected to the hull in a manner such that the reciprocating member is linearly movable between first and second positions in a reciprocating manner;

a fluid passageway that is partially bound by the reciprocating member;

a voice coil actuator operatively connected to the reciprocating member in a manner such that the voice coil actuator is capable of moving the reciprocating member from the first position to the second position; and

an opening through the exterior surface of the hull, the opening forming a portion of the fluid passageway.

17. (Cancelled)

18. (Currently Amended)

~~A watercraft in accordance with claim 16 wherein the watercraft is surrounded by an external environment and wherein A watercraft surrounded by an external environment, the watercraft comprising:~~

a hull, the hull having an exterior surface;
a reciprocating member, the reciprocating member being operatively connected
to the hull in a manner such that the reciprocating member is linearly movable between
first and second positions in a reciprocating manner;
a fluid passageway that is partially bound by the reciprocating member; and
an opening through the exterior surface of the hull, the opening forming a portion
of the fluid passageway, the opening provides providing the sole fluid connection
between the fluid passageway and the external environment.

19. (Original)

A watercraft in accordance with claim 16 wherein the watercraft is surrounded by an external environment and wherein the watercraft further comprises a valve, the valve being moveable between opened and closed positions, the valve preventing communication between the reciprocating member and the external environment through the opening when the valve is in the closed position, the valve allowing communication between the reciprocating member and the external environment through the opening when the valve is in the opened position.

20. (Cancelled)

21. (New)

A method in accordance with claim 1 wherein the step of providing the watercraft

occurs in a manner such that the at least one fluid port provides the sole fluid connection between the fluid passageway and the liquid environment.

22. (New)

A method in accordance with claim 5 wherein the step of providing the watercraft occurs in a manner such that the at least one fluid port provides the sole fluid connection between the fluid passageway and the liquid environment.

23. (New)

A method in accordance with claim 14 wherein the step of providing the watercraft occurs in a manner such that the at least one liquid port provides the sole fluid connection between the fluid passageway and the liquid environment.